

USER'S MANUAL

ProX-1635LF

**For Socket 370
Half-size CPU Card
With VGA / LAN**

Prox-1635LF M2

***Prox-1635LF Socket 370
Half-size Embedded Card
With VGA / LAN***

OPERATION MANUAL

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This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

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CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for Prox-1635LF. It also outlines the System specifications.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our Prox-1635LF Socket 370 Half-Size ISA CPU Card with VGA/ LAN/CF Card, which is fully PC / AT compatible. The Prox-1635LF provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters :

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this Embedded Card.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA Utility, LAN Utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This Appendix introduces you the expansion bus for ISA BUS.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

Appendix C Trouble Shooting

This section outlines the error messages and offers you the methods to solve the problems.

1-2. SYSTEM SPECIFICATIONS

- **CPU :**

- Intel® Celeron™ / Pentium® III/Tualatin/ C3 processors in 370-pin socket
 - 566MHz ~ 1GHz clock generator
 - Auto detect voltage regulator

- **MEMORY :**

- Up to 1GB DDR
 - One 184-pin DIMM socket on board

- **CACHE :**

- Built-in CPU

- **REAL-TIME CLOCK / CALENDAR :**

- Built-in VIA VT8235

- **BIOS :**

- Phoenix-Award PnP, Firmware HUB BIOS memory size 4MB, with VGA BIOS
 - Easy update 256KB flash EEPROM
 - Support Green Function.
 - Support S/IO Setup.

- **KEYBOARD AND MOUSE CONNECTOR :**

- Mini DIN connector, support for keyboard or PS/2 mouse.
 - One additional 5-pin external keyboard connector

- **BUS SUPPORT :**

- External PPCI Bus

- **DISPLAY :**

- Build in VIA CLE266.
 - Support CRT, 24bits TTL Panel.
 - Onboard 15-pin CRT connector, support resolutions up to 1600 x 1200.
 - Onboard 41-pin connector on TTL Panel.

● **WATCHDOG :**

I / O port 0443H to Enable watchdog.

I / O port 0441H to Disable watchdog.

Watchdog function is selectable for Reset or NMI function.

Time-out timing select 0 / 8 / 16 / 24 / 32 / 40 / 48 / 56 / 64 / 72 / 80 / 88 / 96 / 104 / 112 / 120 sec +/- 25%.

● **IDE INTERFACE :**

One enhanced IDE port, support Ultra DMA-33/66/100.

One channel, support up to four devices.

● **FLOPPY DISK DRIVER INTERFACE :**

Support up to two Floppy Disk Drives, 3.5" and 5.25" (1.2M / 1.44M / 2.88M).

● **USB CONNECTOR :**

Universal Serial Bus Connector, support up to four USB 2.0 ports.

● **LAN ADAPTER :**

Single port, VIA 6103 PHY Chip

10/100 Base-TX Ethernet, support Wake-on-LAN

● **CF Card Connector :**

Compact Flash connector on board with second IDE, support type II CF.

● **SERIAL PORT :**

Two high speed 16550 Compatible UARTs with Send / Receive 16 Byte FIFOs;

COM1 is fixed as RS-232; COM2 selectable for RS-232/422/485.

MIDI Compatible

Programmable Baud Rate Generator

● **PARALLEL PORT :**

SPP, ECP, EPP Function.

Bi-directional parallel port.

● **GREEN FUNCTION :**

Software supported by BIOS setup.

Hardware supported by switch control.

● **HARDWARE MONITORING FUNCTION :**

CPUFAN
CPU Temperature
Auto Detect Voltage

● **IRDA :**

One Infrared port

● **LED INDICATOR :**

Hard Disk access
Power Indicator

● **DMA CONTROLLER :**

82C37 x 2

● **DMA CHANNELS :**

7

● **INTERRUPT CONTROLLERS :**

82C59 x 2

● **INTERRUPT LEVELS :**

15

● **OPERATING TEMPERATURE :**

0 to 60°C.

● **INPUT POWER REQUIREMENT :**

DC Voltage: +5V, minimum +4.75V, maximum 5.25V.
DC Ampere: 15A.
DC Voltage: +12V, minimum +11.4V, maximum 12.6V.
DC Ampere: 500mA.

● **BOARD DIMENSIONS :**

185mm x 122mm

● **BOARD NET WEIGHT :**

0.28 Kilograms.

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.
2. Stay safe from the electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

***** QUICK START *****

Helpful information describes the jumper & connector settings, and component locations.

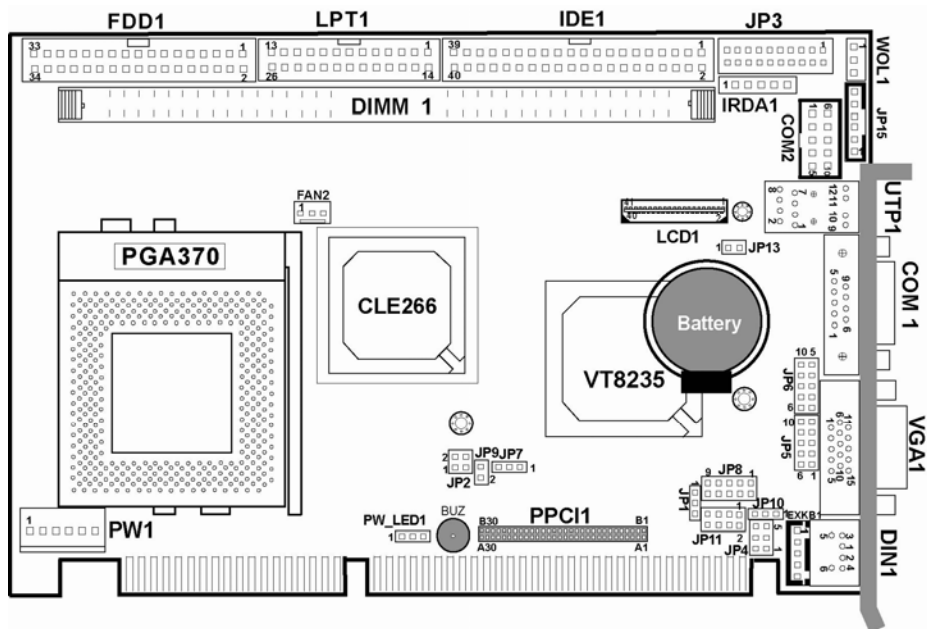
This section includes:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

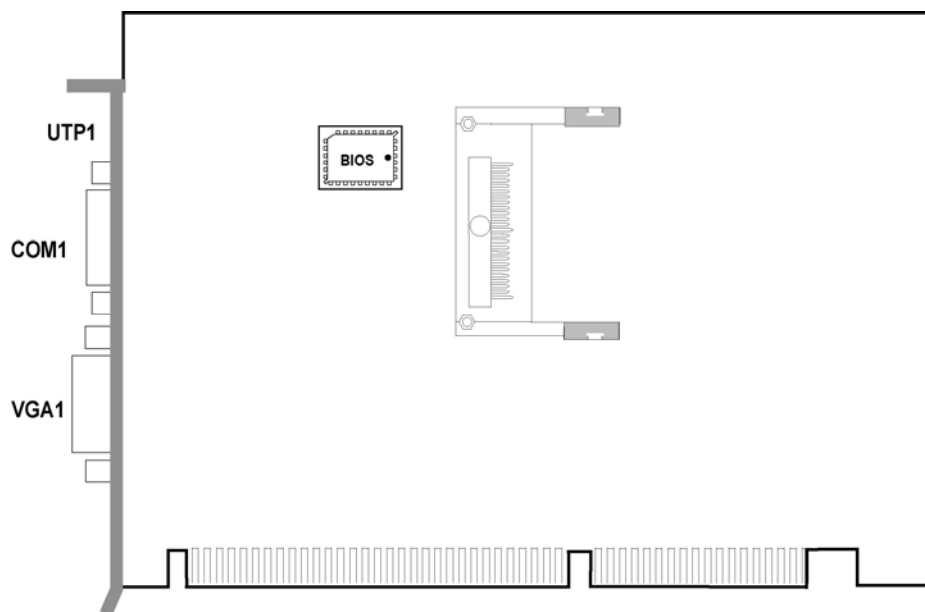
2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

COM Connector	COM1, COM2
RS232/422/485 (COM2) Selection	JP3
Keyboard or PS/2 Mouse Connector	DIN1
Keyboard or PS/2 Mouse Selection	JP4
External Keyboard Connector	EXKB1
Reset Connector	JP8 (1,2)
ATX Power Button	JP11 (5,7)
AT/ATX Function Selection	JP8 (3,4), JP13, JP9
Hard Disk Drive LED Connector	JP11 (2,4,6,8)
EXTSMI Connector	JP11 (1,3)
VGA Connector	VGA1
Floppy Disk Drive Connector	FDD1
Hard Disk Drive Connector	IDE1
Printer Connector	LPT1
CPU Fan Connector	FAN2
ATX Signal Connector	JP10
Wake-On-LAN Connector	WOL1
Universal Serial Bus Connector	JP5, JP6
NMI/Reset/Clear Watchdog	JP8
LAN Connector	UTP1
Power Connector	PW1
IrDA Connector	IRDA1
Clear CMOS Data Selection	JP1
Memory Installation	DIMM1
INTB/SERIRQ Selection	JP7
PPCI Connector	PPCI
CPU Speed Selection	JP2
LCD Connector	LCD1
Inverter Connector	JP15
Power LED Connector	PW_LED1

2-2. COMPONENT LOCATIONS



Prox-1635LF Connector, Jumper and Component locations – Front View



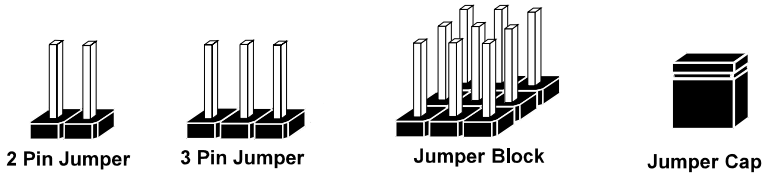
Prox-1635LF Connector, Jumper and Component locations – Rear View

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "opening" or "closing" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

JUMPERS AND CAPS

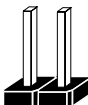


If a jumper has three pins (for example, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagram looks like and what they represent.

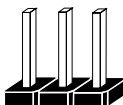
JUMPER DIAGRAMS



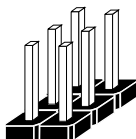
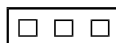
Jumper Cap looks like this



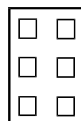
2 pin Jumper looks like this



3 pin Jumper looks like this



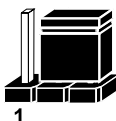
Jumper Block looks like this



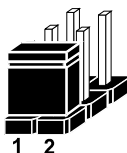
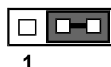
JUMPER SETTINGS



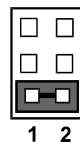
2 pin Jumper close(enabled)
looks like this



3 pin Jumper
2-3 pin close(enabled)
looks like this



Jumper Block
1-2 pin close(enabled)
looks like this



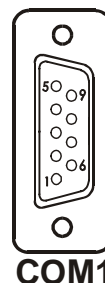
2-4. COM PORT CONNECTOR

There are two COM port enhanced in this board namely: COM1 & COM2. COM1 is fixed for RS-232, while COM2 is selectable for RS-232/422/485.

COM1 : COM1 Connector

The COM1 Connector assignments are as follows:

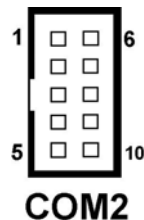
PIN	ASSIGNMENT
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI



COM2 : COM2 Connector

The COM2 Connector assignments are as follows:

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD	TX-	TX-
2	RX	TX+	TX+
3	TX	RX+	RX+
4	DTR	RX-	RX-
5	GND	GND	GND
6	DSR	RTS-	NC
7	RTS	RTS+	NC
8	CTS	CTS+	NC
9	RI	CTS-	NC
10	NC	NC	NC

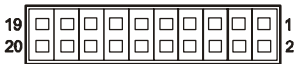
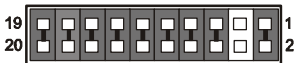
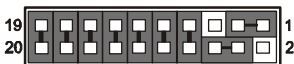


2-5. RS232/422/485 (COM2) SELECTION

JP3 : RS-232/422/485 Selection

COM2 is selectable for RS-232, 422, 485 function.

The jumper settings are as follows :

COM 2 Function	Jumper Setting (pin closed)	Jumper Illustration
RS-232	Open	 <p>JP3</p>
RS-422	1-2, 5-6, 7-8, 9-10 11-12,13-14,15-16 17-18, 19-20	 <p>JP3</p>
RS-485	1-3, 4-6, 7-8, 9-10 11-12,13-14,15-16 17-18, 19-20	 <p>JP3</p>

*** Manufactory default --- RS-232.

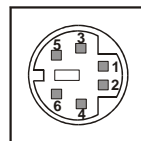
2-6. PS/2 MOUSE CONNECTOR

DIN1 : PS/2 Mouse Connector

DIN connector can support keyboard, Y-cable, or PS/2 Mouse, user may select the right device to used on “Keyboard or PS/2 Mouse Selection”.

The pin assignments are as follows :

PIN	ASSIGNMENT	
	Keyboard	PS/2 Mouse
1	KBDATA	MSDATA
2	MSDATA	MSDATA
3	GND	GND
4	IOVSB	IOVSB
5	KBCLK	MSCLK
6	MSCLK	MSCLK



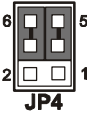
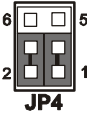
DIN1

2-7. KEYBOARD OR PS/2 MOUSE SELECTION

JP4 : Keyboard or PS/2 Mouse Selection

If User select to use Y-Cable, please set the jumper same as AT keyboard.

The jumper settings are as follows:

DEVICE TYPE	JUMPER SETTINGS (pin closed)	JUMPER ILLUSTRATION
AT KEYBOARD	3-5 4-6	 JP4
PS/2 MOUSE	1-3 2-4	 JP4

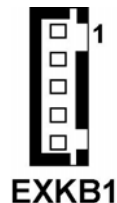
*** Manufactory default -- AT Keyboard

2-8. EXTERNAL KEYBOARD CONNECTOR

EXKB1 : External Keyboard Connector

The pin assignments are as follows :

PIN	ASSIGNMENT
1	KBCLK
2	KBDATA
3	NC
4	GND
5	IOVSB



2-9. RESET CONNECTOR

JP8 (1,2) : Reset Connector.

The pin assignments are as follows :

PIN	ASSIGNMENT
1	RST_SW
2	GND

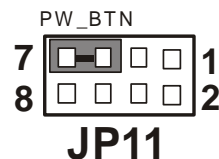


2-10. ATX POWER BUTTON

JP11 (5,7) : ATX Power Button

The pin assignments are as follows:

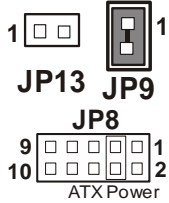
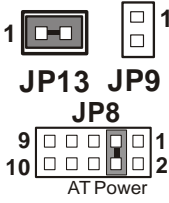
PIN	ASSIGNMENT
5	GND
7	PW_BTN




2-11. AT/ATX FUNCTION SELECTION

JP8, JP13, JP9 : ATX or AT Power Selection


The selections are as follows:

Power Selection	JUMPER SETTINGS			JUMPER ILLUSTRATION
	JP8	JP13	JP9	
ATX	OPEN	OPEN	CLOSE	 <p>JP13 JP9 JP8 ATX Power</p>
AT	CLOSE	CLOSE	OPEN	 <p>JP13 JP9 JP8 AT Power</p>

***Manufacturing Default: ATX

 Please be aware, when you choose to use the AT function, please be sure to set the corresponding configuration found in BIOS setup:

1. Inside the “POWER MANAGEMENT” setting, set the ACPI function to disable.

 When you choose to use the ATX function, please be sure to set the corresponding configuration found in BIOS setup such as:

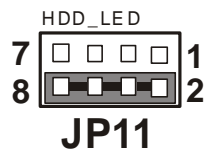
1. Inside the “CHIPSET FEATURES” setting, set the power supply type to ATX.
2. Inside the “POWER MANAGEMENT” setting, set the ACPI function to enable.

2-12. HARD DISK DRIVE LED CONNECTOR

JP11 (2,4,6,8) : Hard Disk Drive LED Connector

The pin assignments are as follows :

PIN	ASSIGNMENT
2	VCC
4	HD_LED
6	HD_LED
8	HD_LED

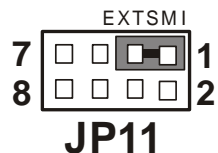


2-13. EXTSMI CONNECTOR

JP11 (1,3) : EXTSMI Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
3	EXTSMI

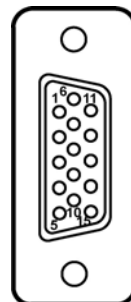


2-14. VGA CONNECTOR

VGA1 : VGA Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	NC
12	SPD1
13	HSYNC
14	VSYNC
15	SPCLK1



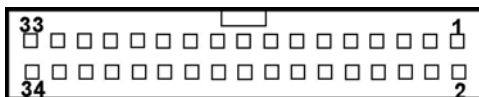
VGA1

2-15. FLOPPY DISK DRIVE CONNECTOR

FDD1 : Floppy Disk Drive Connector

You can use a 34-pin daisy-chain cable to connect two FDDs. On one end of this cable there is a 34-pin flat cable to attach the FDD on the board, the other side attaches to two FDDs.

The pin assignments are as follows :



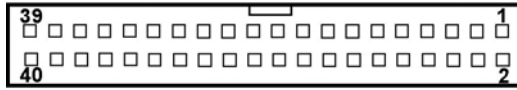
FDD1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	DRV DEN0#
3	GND	4	NC
5	GND	6	NC
7	GND	8	INDEX#
9	GND	10	MOA
11	GND	12	NC
13	GND	14	DSA#
15	GND	16	NC
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WD#
23	GND	24	PWE#
25	GND	26	TRAK0#
27	GND	28	WP#
29	NC	30	RDATA#
31	GND	32	HEAD#
33	NC	34	DSKCHG#

2-16. HARD DISK DRIVE CONNECTOR

IDE : Hard Disk Drive Connector

The pin assignments are as follows:



IDE1

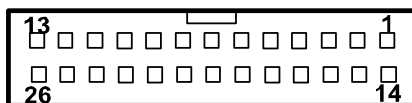
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	IDERST1#	21	PD_DREQ
2	GND	22	GND
3	PDD_7	23	PD_IOW#
4	PDD_8	24	GND
5	PDD_6	25	PD_IOR#
6	PDD_9	26	GND
7	PDD_5	27	P_IORDY
8	PDD_10	28	PULL LOW
9	PDD_4	29	PD_DACK#
10	PDD_11	30	GND
11	PDD_3	31	IRQ_14
12	PDD_12	32	NC
13	PDD_2	33	PD_A1
14	PDD_13	34	GPIOA
15	PDD_1	35	PD_A0
16	PDD_14	36	PD_A2
17	PDD_0	37	PD_CS1#
18	PDD_15	38	PD_CS3#
19	GND	39	-HD_LED1
20	N.C.	40	GND

2-17. PRINTER CONNECTOR

LPT1 : Printer Connector

As to link the Printer to the card, you need a cable to connect both DB25 connector and parallel port.

The pin assignments are as follows :



LPT1

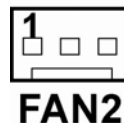
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AUTFE
2	P0	15	ERROR
3	P1	16	INIT
4	P2	17	SLCTIN
5	P3	18	GND
6	P4	19	GND
7	P5	20	GND
8	P6	21	GND
9	P7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-18. CPU FAN CONNECTOR

FAN2 : CPU Fan Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+12V
3	FAN_CTL



2-19. ATX SIGNAL CONNECTOR

JP10 : ATX Signal Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	PS_ON
2	GND
3	5VSB



2-20. WAKE-ON-LAN CONNECTOR

WOL1 : Wake-On-LAN Connector.

The pin assignments are as follows:

PIN	ASSIGNMENT
1	5VSB
2	GND
3	RING



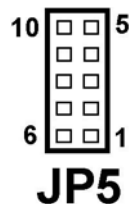
2-21. UNIVERSAL SERIAL BUS CONNECTOR

JP5: Universal Serial Bus Connector

USB connector of this board can support two USB ports.

The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	USBP0-
3	USBP0+
4	GND
5	GND
6	VCC
7	USBP1-
8	USBP1+
9	GND
10	GND

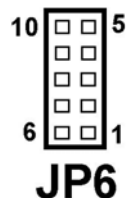


JP6: Universal Serial Bus Connector

USB connector of this board can support two USB ports.

The pin assignments are as follows:



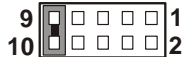
PIN	ASSIGNMENT
1	VCC
2	USBP2-
3	USBP2+
4	GND
5	GND
6	VCC
7	USBP3-
8	USBP3+
9	GND
10	GND



2-22. RESET/NMI/CLEAR WATCHDOG

JP8 : Reset/NMI/Clear Watchdog Selection

The selections are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
RESET	5-6	 <p>JP8</p> <p>Diagram showing a 10-pin header with pins 9, 10, 1, and 2 labeled. Pins 5 and 6 are connected by a jumper.</p>
NMI	7-8	 <p>JP8</p> <p>Diagram showing a 10-pin header with pins 9, 10, 1, and 2 labeled. Pins 7 and 8 are connected by a jumper.</p>
CLEAR WATCHDOG	9-10	 <p>JP8</p> <p>Diagram showing a 10-pin header with pins 9, 10, 1, and 2 labeled. Pins 9 and 10 are connected by a jumper.</p>

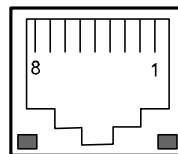
⚠ User may select to use the Reset or NMI watchdog. NMI, also known as Non-Maskable Interrupt, is used for serious conditions that demand the processor's immediate attention, it cannot be ignored by the system unless it is shut off specifically. To clear NMI command, user should short the "Clear Watchdog" pin via push button.

2-23. LAN CONNECTOR

UTP1: LAN Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	TXP
2	TXN
3	RXP
4	CGND
5	CGND
6	RXN
7	CGND
8	CGND



UTP1

LAN LED Indicator:

Left side LED:

Green Color On	10/100 LAN Speed Indicator
Off	No LAN switch/hub connected

Right side LED:

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

2-24. POWER CONNECTOR

PW1 : Power Connector

The pin assignments are as follows :

PIN	ASSIGNMENT
1	NC
2	VCC
3	+12V
4	-12V
5	GND
6	GND



PW1

2-25. IRDA CONNECTOR

IRDA1 : IrDA (Standard IR) Connector

The pin assignments are as follows:

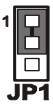

PIN	ASSIGNMENT
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX



2-26. CLEAR CMOS DATA SELECTION

JP1 : Clear CMOS Data Selection

The selection are as follows :

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS	2-3	

*** Manufacturing Default is set as Normal.

Note: To clear CMOS data, user must power-off the computer and set the jumper to “Clear CMOS” as illustrated above. After five to six seconds, set the jumper back to “Normal” and power-on the computer.

2-27. MEMORY INSTALLATION

The Prox-1635LF Embedded Computer supports 1DDR bank.



DRAM BANK CONFIGURATION


DIMM 1	TOTAL MEMORY
128M	128M
256M	256M
512M	512M
1GB	1GB

2-28. INTB/SERIRQ SELECTION

JP7 : INTB/SERIRQ Selection

The selections are as follows:

Power Selection	JUMPER SETTINGS (pin closed)	JUMPER ILLUSTRATION
INTB	1-2	
SERIRQ	2-3	

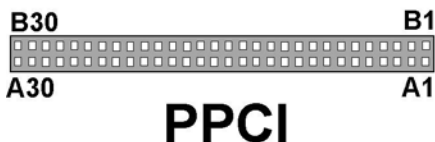
 As a reminder, the jumper is setting when use EPCI interface.

*** Manufacturing Default is set as INTB.

2-29. PPCI CONNECTOR

You will find a PPCI connector on our Prox-1635LF. This connector is used to connect our SCSI daughter boards.

The pin assignments are as follows:






PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	GND	B1	GND
A2	AD0	B2	AD1
A3	AD2	B3	AD3
A4	AD4	B4	AD5
A5	AD6	B5	AD7
A6	AD8	B6	AD9
A7	AD10	B7	AD11
A8	VCC	B8	VCC
A9	AD12	B9	AD13
A10	AD14	B10	AD15
A11	AD16	B11	AD17
A12	AD18	B12	AD19
A13	AD20	B13	AD21
A14	AD22	B14	AD23
A15	VCC	B15	VCC
A16	AD24	B16	AD25
A17	AD26	B17	AD27
A18	AD28	B18	AD29
A19	AD30	B19	AD31
A20	INIT	B20	PAR
A21	PCICLK_A	B21	IRDY#
A22	ID SEL	B22	TRDY#
A23	CBE#0	B23	CBE#1
A24	CBE#2	B24	CBE#3
A25	GNT#3	B25	REQ#3
A26	SERR#	B26	PERR#
A27	INTR#A	B27	PCIRST#
A28	STOP#	B28	PLOCK#
A29	DEVSEL#	B29	FRAME#
A30	GND	B30	GND

2-30. CPU SPEED SELECTION

JP2 : CPU Speed Selection

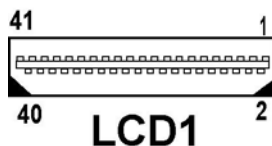
The selections are as follows:

Power Selection	JUMPER SETTINGS (pin closed)	JUMPER ILLUSTRATION
66 MHz	1-2, 3-4	 JP2
100 MHz	3-4	 JP2
133 MHz	open	 JP2

2-31. LCD CONNECTOR

LCD1 : LCD Connector

The pin assignments are as follows :



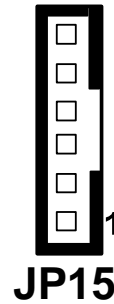
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	FP20	2	GND
3	FP16	4	LCD_VCC5
5	FP21	6	FP0
7	FP17	8	FP8
9	FP22	10	FP1
11	FP18	12	FP9
13	FP23	14	FP2
15	FP19	16	FP10
17	LCD_VCC5	18	FP3
19	FPVS	20	FP11
21	FPDEN	22	FP4
23	FPHS	24	FP12
25	FPCLK	26	FP5
27	LCD_VCC3	28	FP13
29	LCD_VCC3	30	FP6
31	FPENABKL	32	FP14
33	VCC	34	FP7
35	ENVEE	36	FP15
37	GND	38	+12V
39	GND	40	+12V
41	NC		

2-32. INVERTER CONNECTOR

JP15 : Inverter Connector

The pin assignment is as follows:

PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	VCC
5	GND
6	ENABKL (Inverter backlight ON/OFF control signal)



2-33. POWER LED CONNECTOR

PW_LED1 : Power LED Connector

The pin assignment is as follows:

PIN	ASSIGNMENT
1	PW_LED+
2	PW_LED+
3	PW_LED-



SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, sound driver, and Flash BIOS update. It also describes how to install the watchdog timer configuration.

Section includes:

- VIA 4 IN 1 Service Pack Driver
- VGA Driver Utility
- Flash BIOS Update
- LAN Driver Utility
- USB 2.0 Chipset Software Installation Utility
- Watchdog Timer Configuration

3-1. INTRODUCTION

Enclosed with our Prox-1635LF package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes. For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

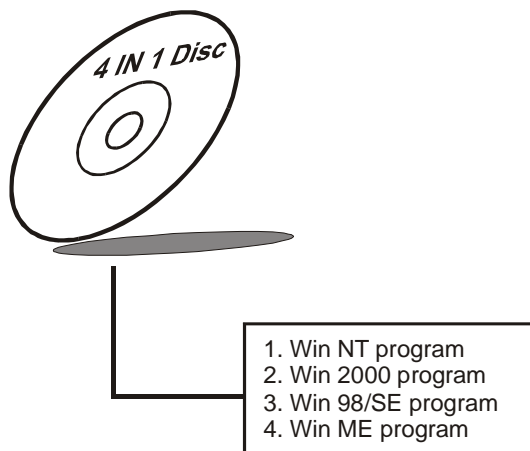
Filename (Assume that CD ROM drive is D:)	Purpose
D:\ Utility\	For VIA Hyperion 4 in 1
D:\ VGA\	For VGA driver installation
D:\ Award Flash\	For BIOS update
D:\ LAN\	VIA 6103 For LAN Driver installation
D:\ USB 2.0\	USB 2.0 Software Installation Utility For Win 98SE, 2000, ME, XP

3-2. VIA 4IN1 SERVICE PACK DRIVER

3-2-1. Introduction

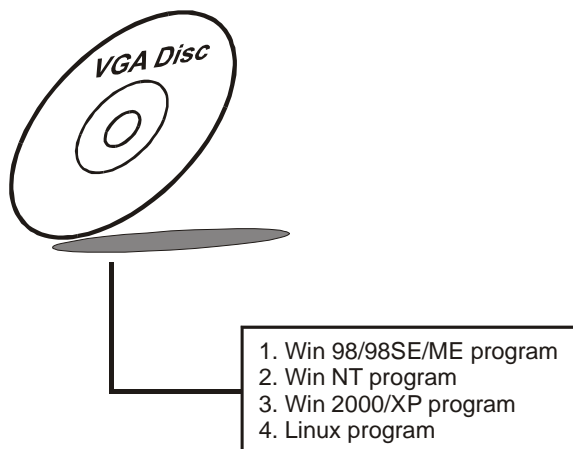
The 4-in-1 drivers are a collection of periodically updated drivers that provide enhanced VIA chipset to support under Microsoft Windows. This drivers should be installed after the OS is fully installed, to improve performance, fix issues, and minimize any incompatibilities.

The VIA 4 In 1 driver includes four system drivers to improve the performance and maintain the stability of systems using VIA chipsets. These four drivers are: VIA Registry (INF) Driver, VIA AGP VxD driver, VIA ATAPI Vendor Support Driver and VIA PCI IRQ Miniport Driver



3-3. VGA DRIVER UTILITY

The VGA interface embedded with our Prox-1635LF can support a wide range of display mode, such as SVGA, STN, TFTetc. You can display CRT, LVDS and PanelLink simultaneously with the same mode.



3-4. FLASH BIOS UPDATE

3-4-1. System BIOS Update:

Users of Prox-1635LF can use the program “Awdflash.exe” contained in the Utility Disk for system BIOS and VGA BIOS update.

3-4-2. To update VGA BIOS for LCD Flat Panel Display:

As Prox-1635LF user, you have to update the VGA BIOS for your specific LCD flat panel you are going to use. For doing this, you need two files. One is the “Awdflash.exe” file and the other is the VGA BIOS for LCD panel display. Both file must be provided by the vendor or manufacturer. When you get these two files ready, follow the following steps for updating your VGA BIOS:

1. Install “Awdflash.exe” from Utility Disk to Drive C.
2. Insert the VGA BIOS file you have obtained from the vendor.
3. Type the path to Awdflash.exe and execute the VGA BIOS update with file B75xxxxx.bin
C:\UTIL\AWDFLASH>AWDFLASH B35B1XP1.bin
4. The screen will display the table below:

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B35B1XP1.bin Checksum: XXXXX
Error Message : Do You Want To Save BIOS (Y/N)

If you want to save up the original BIOS, enter "Y" and press < Enter > .
If you choose "N", the following table will appear on screen.

FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B35B1XP1.bin Checksum: XXXXX
Error Message : Are You Sure To Program (Y/N)

Select "Y", and the BIOS will be renewed. When you are refreshing the BIOS, do not turn off or reset the system, or you will damage the BIOS. After you have completed all the programming, the screen displays the table below:

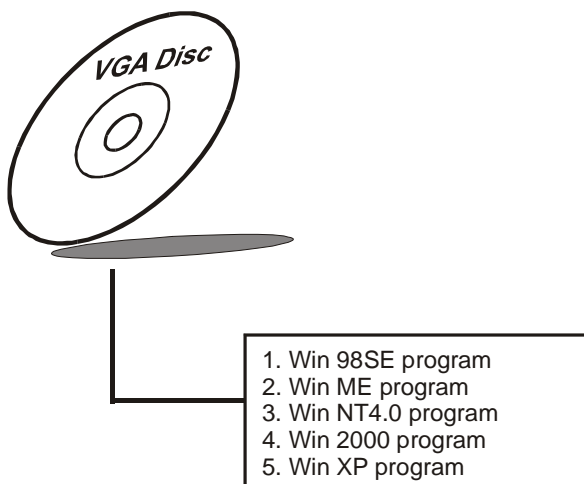
FLASH MEMORY WRITER v7.XX (C) Award Software 2000 All Rights Reserved
Flash Type - MXIC 29F004T /5V File Name to Program: B35B1XP1.bin Checksum: XXXXX Reset System or Power off to accomplish update process!
F1: Reset F10: Exit

Please reset or power off the system, and then the Flash BIOS is fully implemented.

3-5. LAN DRIVER UTILITY

3-5-1. Introduction

Prox-1635LF Embedded Board is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:



3-5-2. Installation Procedures of LAN Driver

1. Install LAN Driver to Windows 98SE/2000/XP

Executing Windows 98SE/Windows 2000/Windows XP, it will auto-detect your system configuration and find the adapter hardware.

- (1) Ask you to select which driver you want to install, select "Driver from disk provided by hardware manufacturer".
- (2) Insert the VIA 6103 driver disk into the drive A or CD drive and specify the setup file pathname, ex: A:\.
- (3) Win 98/ Win 2000/ Win XP will appear some messages to insert Windows 98/Win2000/Win XP system disk to complete setup step.
- (4) Windows 98/Windows 2000/ Windows XP will finish the other installation procedure automatically, and then restart the system.

2. Install LAN Driver to Windows NT4.0

- (1) In the Main group of NT, select the “Control Panel” icon.
- (2) In the Control Panel window, choose the “Network” icon.
- (3) In the Network Settings dialog box, choose the “Add adapter” button. The Add Network Adapter dialog box appears.
- (4) In the list of network cards, select “<other> Requires disk from manufacturer”, and then press <Enter> button.
- (5) Insert the LAN driver utility, and enter the filename (ex. A:\pathname) where the setup file OEMSETUP.INF is located, and then choose OK button.
- (6) The screen will appear “Select Line Speed” dialog box, which is provided by VIA 6103.SYS driver. The default value is “auto” so that the line speed can be auto detected as 10MB or 100MB, while the VIA 6103.SYS is loading.
- (7) The screen will appear “Input Ethernet ID” dialog box, which is provided by VIA 6103.SYS driver. This option is only required when you have more than one VIA 6103 PCI Fast Ethernet adapters on this computer. Select “SKIP” if only one adapter is installed on this computer.
- (8) “Bus Location” displayed in next screen. Your machine contains more than one hardware bus, please select the Bus Type and Bus number on which your network adapter card is installed.
- (9) NT will then perform the binding process. If any additional network software options were installed, you may be prompted for specific information for these packages.
- (10) Re-starting your system you will acquire network service.

 **Note:** For Installing Multiple LAN Adapters:

Enter Windows NT and follow above setup procedure step 2, in the “Network Settings” dialog box, choose the “Configure...” button. The “Input Ethernet ID” dialog box appears and input adapter’s Ethernet ID. Last step to select OK and close NETWORK SETUP. Select SKIP if only one adapter is installed on this computer.

For more information on installation procedure, please refer to TXT directory found on LAN DRIVER UTILITY.

3-6. USB2.0 SOFTWARE INSTALLATION UTILITY

3-6-1. Installation of Utility for Windows 98SE/ 2000/XP

Intel USB 2.0 Enhanced Host Controller driver can only be used on Windows 98SE, Windows 2000 and Windows XP on Intel Desktop boards. It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows 98SE, 2000, and XP system, go to the directory where Utility Disc is located.
3. Start the “System” wizard in control panel. (Click Start/Settings/Control Panel).
4. Select “Hardware” and click “Device Manager ” button.
5. Double Click “USB Root Hub”.
6. Select “Driver”.
7. Click “Install” to install the driver.
8. Follow the instructions on the screen to complete the installation.
9. Click “Finish” after the driver installation is complete.

3-7. WATCHDOG TIMER CONFIGURATION

This board has watchdog timer function for monitoring whether the system is still work or not after a period of time. The user can select watchdog timer to system reset or NMI (Non Maskable interrupt) depending on the jumper set in “Reset/NMI/Clear Watchdog Selection” found in chapter 2. This is defined at I/O port **443H**. When you want to enable the watchdog timer, please write I/O port **443H**, and then the system will either reset itself or perform the NMI function. Likewise, when you want to disable the function, write I/O port **441H**, the system will run the command to stop the Watchdog function.

In Prox-1635LF watchdog function, you must write your program so when it writes I/O port address 443 for enable watchdog and write I/O port address 441 for disable watchdog. The timer's intervals have a tolerance of 25% so you should program an instruction that will refresh the timer about every second.

The following program shows you how to program the watch timer in your program.

Watchdog enable program:

```
MOVAX, 000FH(choose the values you need; start from 0)
MOVDX, 443H
OUTDX, AX
```

Watchdog disable program:

```
MOVAX, 000FH(this value can be ignored)
MOVDX, 441H
OUTDX, AX
```

The Watchdog Timer control table is as follows:

Level	Value	Time/sec	Level	Value	Time/sec
1	F	0	9	7	64
2	E	8	10	6	72
3	D	16	11	5	80
4	C	24	12	4	88
5	B	32	13	3	96
6	A	40	14	2	104
7	9	48	15	1	112
8	8	56	16	0	120

AWARD BIOS SETUP

CHAPTER

4

This chapter shows how to set up the Award BIOS.

Section includes:

- Introduction
- Entering Setup
- The Standard CMOS Features
- The Advanced BIOS Features
- The Advanced Chipset Features
- Integrated Peripherals
- Power Management Setup
- PNP/PCI Configuration
- PC Health Status
- Frequency/Voltage Control
- Load Fail-Safe Defaults
- Load Optimized Defaults
- Password Setting
- Save and Exit Setup
- Exit Without Saving

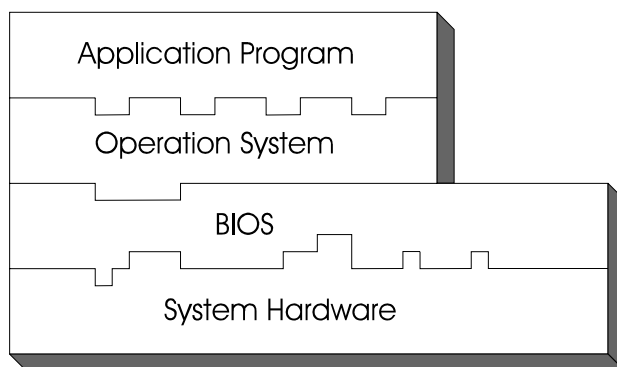
4-1. INTRODUCTION

This chapter will show you the function of the BIOS in managing the features of your system. The Prox-1635LF Socket 370 CPU Card is equipped with the BIOS for system chipset from Award Software Inc. This page briefly explains the function of the BIOS in managing the special features of your system. The following pages describe how to use the BIOS for system chipset Setup menu.

Your application programs (such as word processing, spreadsheets, and games) rely on an operating system such as DOS or OS/2 to manage such things as keyboard, monitor, disk drives, and memory.

The operating system relies on the BIOS (Basic Input and Output system), a program stored on a ROM (Read-only Memory) chip, to initialize and configure your computer's hardware. As the interface between the hardware and the operating system, the BIOS enables you to make basic changes to your system's hardware without having to write a new operating system.

The following diagram illustrates the interlocking relationships between the system hardware, BIOS, operating system, and application program:



4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

PRESS TO ENTER SETUP, ESC TO SKIP MEMORY TEST

As long as this message is present on the screen you may press the key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Award SETUP program will appear on the screen:

Phoenix – AwardBIOS CMOS Setup Utility

<ul style="list-style-type: none"> ▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status 	<ul style="list-style-type: none"> ▶ Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item
Time, Date, Hard Disk Type	

Setup program initial screen

You may use the cursor the up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. THE STANDARD CMOS FEATURES

Highlight the "STANDARD CMOS FEATURES" and press the <ENTER> key and the screen will display the following table:

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Fri, Jan 4 2002	Item Help
Time (hh:mm:ss)	18 : 48 : 51	
► IDE Primary Master	[ST320011A]	Menu Level ►
► IDE Primary Slave	[ATAPI 52X CDROM]	
► IDE Secondary Master	[None]	Change the day, month, year and century
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	228352K	
Total Memory	229376K	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

CMOS Setup screen

In the above Setup Menu, use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Date:

< Month >, < Date > and <Year >. Ranges for each value are in the CMOS Setup Screen, and the week-day will skip automatically.

Time:

< Hour >, < Minute >, and < Second >. Use 24 hour clock format, i.e., for PM numbers, add 12 to the hour. For example: 4: 30 P.M. You should enter the time as 16:30:00.

IDE Primary Master / Slave:**IDE Secondary Master / Slave:**

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detect its specifications during POST, every time system boots.

If you do not want to select drive type AUTO, other methods of selecting drive type are available:

1. Match the specifications of your installed IDE hard drive(s) with the preprogrammed values for hard drive types 1 through 45.
2. Select USER and enter values into each drive parameter field.
3. Use the IDE HDD AUTO DETECTION function in Setup.

Here is a brief explanation of drive specifications:

Type: The BIOS contains a table of pre-defined drive types. Each defined drive type has a specified number of cylinders, number of heads, write precompensation factor, landing zone, and number of sectors. Drives whose specifications do not accommodate any predefine type are classified as type USER.

- Size: Disk drive capacity (approximate). Note that this size is usually greater than the size of a formatted disk given by a disk-checking program.
- Cyls: number of cylinders.
- Head: number of heads.
- Precomp: write precompensation cylinders.
- Landz: landing zone.
- Sector: number of sectors.
- Mode: Auto, Normal, Large or LBA.

Auto: The BIOS automatically determines the optimal mode.

- Normal: Maximum number of cylinders, heads, sectors supported are 1024, 16 and 63.
- Large: For drives that do not support LBA and have more than 1024 cylinders.

- **LBA (Logical Block Addressing):** During drive accesses, the IDE controller transforms the data address described by sector, head and cylinder number into a physical block address, significantly improving data transfer rates. For drives greater than 1024 cylinders.

DRIVE A AND DRIVE B:

Select the type of floppy disk drive installed in your system. The available options are 360KB 5.25in, 1.2KB 5.25in, 720KB 3.5in, 1.44MB 3.5in, 2.88MB 3.5in and None.

VIDEO:

This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type in Setup. Available Options are as follows:

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode.
CGA 80	Color Graphics Adapter, power up in 80 column mode.
MONO	Monochrome adapter, includes high resolution monochrome adapters.

HALT ON:

This category allows user to choose whether the computer will stop if an error is detected during power up. Available options are “All errors”, “No errors”, “All, But keyboard”, “All, But Diskette”, and “All But Disk/Key”.

BASE MEMORY:

Displays the amount of conventional memory detected during boot up.

EXTENDED MEMORY:

Displays the amount of extended memory detected during boot up.

TOTAL MEMORY:

Displays the total memory available in the system.

HARD DISK ATTRIBUTES:

Type	Cylinders	Heads	V-P comp	LZone	Sect	Capacity
1	306	4	128	305	17	10
2	615	4	300	615	17	20
3	615	6	300	615	17	30
4	940	8	512	940	17	62
5	940	6	512	940	17	46
6	615	4	65535	615	17	20
7	642	8	256	511	17	30
8	733	5	65535	733	17	30
9	900	15	65535	901	17	112
10	820	3	65535	820	17	20
11	855	5	65535	855	17	35
12	855	7	65535	855	17	49
13	306	8	128	319	17	20
14	733	7	65535	733	17	42
15	000	0	0000	000	00	00
16	612	4	0000	663	17	20
17	977	5	300	977	17	40
18	977	7	65535	977	17	56
19	1024	7	512	1023	17	59
20	733	5	300	732	17	30
21	733	7	300	732	17	42
22	733	5	300	733	17	30
23	306	4	0000	336	17	10
24	977	5	65535	976	17	40
25	1024	9	65535	1023	17	76
26	1224	7	65535	1223	17	71
27	1224	11	65535	1223	17	111
28	1224	15	65535	1223	17	152
29	1024	8	65535	1023	17	68
30	1024	11	65535	1023	17	93
31	918	11	65535	1023	17	83
32	925	9	65535	926	17	69
33	1024	10	65535	1023	17	85
34	1024	12	65535	1023	17	102
35	1024	13	65535	1023	17	110
36	1024	14	65535	1023	17	119
37	1024	2	65535	1023	17	17
38	1024	16	65535	1023	17	136
39	918	15	65535	1023	17	114
40	820	6	65535	820	17	40
41	1024	5	65535	1023	17	42
42	1024	5	65535	1023	26	65
43	809	6	65535	852	17	40
44	809	6	65535	852	26	61
45	776	8	65335	775	33	100
47	AUTO					

Award Hard Disk Type Table

4-4. THE ADVANCED BIOS FEATURES

Choose the “ADVANCED BIOS FEATURES” in the main menu, the screen shown as below.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

Virus Warning	[Disabled]	Item Help
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	Menu Level ▶ Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU L2 Cache ECC Checking	[Enabled]	
Processor Number Feature	[Disabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
OS Select for DRAM > 64MB	[Non-OS2]	
Video BIOS Shadow	[Enabled]	
Small Logo (EPA) Show	[Disabled]	
↑↓←→:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

BIOS Features Setup Menu

The “BIOS FEATURES SETUP” allow you to configure your system for basic operation. The user can select the system’s default speed, boot-up sequence, keyboard operation, shadowing and security.

A brief introduction of each setting in the BIOS FEATURES SETUP program is given on the next few pages.

VIRUS WARNING :

This item allows you to choose the Virus Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

CPU INTERNAL CACHE :

EXTERNAL CACHE :

These two categories speed up memory access. However, it depends on CPU/chipset design.

CPU L2 CACHE ECC CHECKING :

This item allows you to enable or disable CPU L2 Cache ECC checking.

PROCESSOR NUMBER FEATURE:

This option is for Pentium® III processor only. During Enabled, this will check the CPU Serial number. Disabled this option if you don't want the system to know the Serial number.

QUICK POWER ON SELF-TEST:

This item allows you to speed up Power On Self Test (POST) after power-up the computer. When enabled, the BIOS will shorten or skip some check items during POST.

FIRST/SECOND/THIRD/OTHER BOOT DEVICE:

The BIOS attempt to load the operating system from the devices in the sequence selected in these items.

SWAP FLOPPY DRIVE:

This field is effective only in systems with two floppy drives. Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

BOOT UP FLOPPY SEEK:

You may enable / disable this item to define whether the system will look for a floppy disk drive to boot at power-on, or proceed directly to the hard disk drive.

BOOT UP NUMLOCK STATUS:

Select power on state for NumLock.

GATE 20A OPTION:

This entry allows you to select how the gate A20 is handled. When Normal was set, a pin in the keyboard controller controls Gate A20. And when Fast was set, the chipset controls Gate A20.

TYPEMATIC RATE SETTING:

Enable this item if you wish to be able to configure the characteristics of your keyboard. Typematic refers to the way in which characters are entered repeatedly if a key is held down. For example, if you press and hold down the "A" key, the letter "a" will repeatedly appear on your screen on your screen until you release the key. When enabled, the typematic rate and typematic delay can be selected.

TYPEMATIC RATE (CHARS/SEC):

This item sets the number of times a second to repeat a key stroke when you hold the key down.


TYPEMATIC DELAY (MSEC):

The item sets the delay time after the key is held down before it begins to repeat the keystroke.

SECURITY OPTION:

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

 To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

OS SELECT FOR DRAM >64MB :

Select the operating system that is running with greater than 64MB or RAM on the system. You may choose OS2 or Non-OS2.

VIDEO BIOS SHADOW:

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

4-5. ADVANCED CHIPSET FEATURES

Choose the "ADVANCED CHIPSET FEATURES" from the main menu, the screen shown as below.

Phoenix – Award CMOS Setup Utility
Advanced Chipset Features

▶DRAM Clock/Drive Control	[Press Enter]	Item Help
▶AGP & P2P Bridge Control	[Press Enter]	
▶CPU & PCI Bus Control	[Press Enter]	Menu Level ▶
Memory Hole	[Disabled]	
System BIOS Cacheable	[Disabled]	
Video RAM Cacheable	[Disabled]	
Power-Supply Type	[ATX]	
VGA Share Memory Size	[32M]	
Select Display Device	[CRT+LCD]	
Panel Type	[18 Bits 800x600]	
PCI SERR# NMI	[Disabled]	
Memory Parity/ECC Check	[Disabled]	
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Chipset Features Setup Screen

This parameter allows you to configure the system based on the specific features of the installed chipset. The chipset manages bus speed and access to system memory resources, such as DRAM and the external cache.

It also coordinates communications between conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for the system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

DRAM CLOCK/DRIVE CONTROL:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award WorkstationCMOS Setup Utility
DRAM clock / Drive Control

Current FSB Frequency	100 MHz	Item Help
Current DRAM Frequency	133MHz	
DRAM Clock	[By SPD]	Menu Level ▶
DRAM Timing	[By SPD]	
X DRAM Cas Latency	2.5	
X Bank Interleave	Disabled	
X Precharge to Active (Trp)	3T	
X Active to Precharge (Tras)	6T	
X Active to CMD (Trcd)	3T	
DRAM Command Rate	[2T Command]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. Current FSB Frequency

This item shows the CPU front-side Bus Frequency

2. Current DRAM Frequency

This item shows the DRAM frequency

3. DRAM Clock

This item allows you to control the DRAM speed at either equal to or one-half of the SYSClk (system clock signal) speed. While speed is always desirable, choosing the higher setting may prove to be too fast for some components.

4. DRAM Timing

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

5. DRAM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

6. Bank Interleave

7. Precharge to Active (Trp)

8. Active to Precharge (Tras)

This item controls the number of DRAM clocks for TRAS.

9. Active to CMD (Trcd)

10. DRAM Command Rate

This item set the DRAM command rate.

AGP & P2P BRIDGE CONTROL:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	[64M]	Item Help
AGP Mode	[4X]	Menu Level ▶
AGP Driving Control	[Auto]	
X AGP Driving Value	DA	
AGP Fast Write	[Disabled]	
AGP Master 1 WS Write	[Disabled]	
AGP Master 1 WS Read	[Disabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. AGP Aperture Size

This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

2. AGP Mode

This item allows you to set the AGP mode.

3. AGP Driving Control

This item allows you to adjust the AGP driving force. Choose Manual to key in an AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system.

4. AGP Driving Value

This item allows you to adjust the AGP driving force.

5. AGP Fast Write

This item will enable the AGP model into fast write mode.

6. AGP Master 1 WS Write

When Enabled, writes to the AGP (Accelerated Graphics Port) are executed with one wait state.

7. AGP Master 1 WS Read

When Enabled, reads to the AGP (Accelerated Graphics Port) are executed with one wait state.

CPU & PCI BUS CONTROL:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
CPU & PCI Bus Control

CPU to PCI Write Buffer	[Enabled]	Item Help
PCI Master 0 WS Write	[Enabled]	
PCI Delay Transaction	[Disabled]	Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item are as follows:

1. CPU to PCI Write Buffer

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

2. PCI Master 0 WS Write

When Enabled, writes to the PCI bus are executed with zero wait states.

3. PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

MEMORY HOLE:

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

SYSTEM BIOS CACHEABLE:

This item allows you to enable caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

VIDEO BIOS CACHEABLE:

Select Enabled allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

PCI SERR# NMI:

This field enables or disables PCI SERR# NMI. Before selecting this function, the user should check first that NMI function is enabled as described in chapter 2 (Reset/NMI/Clear Watchdog Selection)

MEMORY PARITY/ECC CHECK:

This item enabled to detect the memory parity and Error Checking & Correcting.

4-6. INTEGRATED PERIPHERALS

Choose "INTEGRATED PERIPHERALS" from the main setup menu, a display will be shown on screen as below:

Phoenix – Award CMOS Setup Utility		
Integrated Peripherals		
▶ VIA OnChip IDE Device	[Press Enter]	Item Help
▶ VIA OnChip PCI Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	Menu Level ▶
Init Display First	[PCI Slot]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Integrated Peripherals Setup Screen

By moving the cursor to the desired selection and by pressing the <F1> key, the all options for the desired selection will be displayed for choice.

- 🔔 In bios setup menu item if support USB device boot, it will cause that Win9x detects the same storage twice when reboot the system, then USB HDD will fail.

Note: this cause only happen under Win9x, the phenomenon is a limitation.

VIA ONCHIP IDE DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility VIA OnChip IDE Device

OnChip IDE Channel 0	[Enabled]	Item Help
OnChip IDE Channel 1	[Enabled]	
IDE Prefetch Mode	[Enabled]	Menu Level ►
Primary Master PIO	[Auto]	
Primary Slave PIO	[Auto]	
Secondary Master PIO	[Auto]	
Secondary Slave PIO	[Auto]	
Primary Master UDMA	[Auto]	
Primary Slave UDMA	[Auto]	
Secondary Master UDMA	[Auto]	
Secondary Slave UDMA	[Auto]	
IDE HDD Block Mode	[Enabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. OnChip IDE Channel 0 / 1

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface.

2. IDE Prefetch Mode

The onboard IDE drive interfaces supports IDE pre-fetching for faster drive accesses. If you install a primary and or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support pre-fetching.

3. Primary Master/Slave PIO

Secondary Master/Slave PIO

The four IDE PIO fields allow you to set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

4. Primary Master/Slave UDMA Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If you hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

5. IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

VIA ONCHIP PCI DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility VIA OnChip PCI Device

USB 2.0 Support	[Enabled]	Item Help
VIA-3043 OnChip LAN	[Enabled]	
OnChip USB Controller	[All Enabled]	Menu Level ▶
USB Keyboard Support	[Disabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. OnChip USB Controller

This should be enabled if your system has a USB installed on the system board and you want to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

2. USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

SUPER IO DEVICE:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	Menu Level ►
X UART Duplex Mode	Half	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X ECP Mode Use DMA	3	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

1. Onboard FDC Controller

Select Enabled if the system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled.

2. Onboard Serial Port 1/2

Select an address and corresponding interrupt for the first and second serial ports.

3. UART Mode Select

This item allows you to select UART mode.

4. UR2 Duplex Mode

This item allows you to select the IR half/full duplex function.

5. Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O address.

6. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select *Normal*, *Compatible*, or *SPP* unless you are certain your hardware and software both support one of the other available modes.

7. ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

INIT DISPLAY FIRST:

This item allows you to decide to active whether PCI Slot or on-chip VGA first.

4-7. POWER MANAGEMENT SETUP

Choose "POWER MANAGEMENT SETUP" option on the main menu, a display will be shown on screen as below :

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
Power Management Option	[User Define]	
Suspend Mode	[Disabled]	Menu Level ►
Video off Option	[Suspend -> off]	
Video off Method	[V/H SYNC+Blank]]	
MODEM Use IRQ	[3]	
Soft-Off by PWR-BTTN	[Instant-off]	
Ac Loss Auto Restart	[Auto]	
► IRQ/Event Activity Detect	[Press Enter]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Power Management Setup Screen

The "Power Management Setup" allows the user to configure the system to the most effectively save energy while operating in a manner consistent with your own style of computer use.

ACPI FUNCTION:

Users are allowed to enable or disable the Advanced Configuration and Power Management (ACPI).

POWER MANAGEMENT:

This item allows the user to select the type or degree of power saving and is directly related to HDD Power Down, Doze Mode and Suspend Mode.

SUSPEND MODE:

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

VIDEO OFF OPTION:

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the systems enters the Suspend mode.
Susp,Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

VIDEO OFF METHOD:

This category determines the manner in which the monitor is blanked.

V/H SYNC+BLANK	This selection will cause the system to turn off the vertical & horizontal synchronization ports and writes blanks to video buffer.
BLANK SCREEN	This selection only writes blanks to video buffer.
DPMS	Initial display power management signaling.

MODEM USE IRQ:

This item enable you to name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

SOFT-OFF BY PWR-BTTN:

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has “hung”. The choices are Delay 4 Sec and Instant-Off.

IRQ/EVENT ACTIVITY DETECT:

The options for these items are found in its sub menu. By pressing the <ENTER> key, you are prompt to enter the sub menu of the detailed options as shown below:

Phoenix – Award CMOS Setup Utility
IRQ/Event Activity Detect

VGA	[OFF]	Item Help
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	
PCI Master	[OFF]	Menu Level ►
PowerOn by PCI Card	[Disabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
X Date (Of Month)	0	
X Resume Time (hh:mm:ss)	0 : 0 : 0	
► IRQs Activity Monitoring	[Press Enter]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Descriptions on each item above are as follows:

- VGA**
When *Enabled*, you can set the VGA awakens the system.
- LPT & COM**
When *On of* LPT & COM, any activity from one of the listed system peripheral devices or IRQs wakes up the system.
- HDD & FDD**
When *On of* HDD & FDD, any activity from one of the listed system peripheral devices wakes up the system.
- PCI Master**
When *On of* PCI Master, any activity from one of the listed system peripheral devices wakes up the system.
- PowerOn by PCI Card**
An input signal from PME on the PCI card awakens the system from a soft off state.
- Modem Ring Resume**
An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.
- RTC Alarm Resume**
When *Enabled*, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
- IRQ Activity Monitoring**

By entering this section, you will find a list of IRQ's, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When set *On*, activity will neither prevent the system from going into a power management mode nor awaken it.

- | | |
|-----------------------------|---------------------------------|
| • Primary INTR | • IRQ9 (IRQ2 Redir) |
| • IRQ3 (COM 2) | • IRQ10 (Reserved) |
| • IRQ4 (COM 1) | • IRQ11 (Reserved) |
| • IRQ5 (LPT 2) | • IRQ12 (PS / 2 Mouse) |
| • IRQ6 (Floppy Disk) | • IRQ13 (Coprocessor) |
| • IRQ7 (LPT 1) | • IRQ14 (Hard Disk) |
| • IRQ8 (RTC Alarm) | • IRQ15 (Reserved). |

4-8. PNP/PCI CONFIGURATION

Choose “PNP/PCI CONFIGURATION” from the main menu, a display will be shown on screen as below:

Phoenix – AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	
x DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
Assign IRQ for VGA	[Enabled]	
Assign IRQ for USB	[Enabled]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

PNP/PCI Configuration Setup Screen

This section describes how to configure PCI bus system. PCI, also known as Personal Computer Interconnect, is a system, which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components. This section covers technical items, which is strongly recommended for experienced users only.

PNP OS INSTALLED:

This item allows you to determine install PnP OS or not.

RESET CONFIGURATION DATA:

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system configuration has caused such a serious conflict that the operating system cannot boot.

RESOURCE CONTROLLED BY:

The Award Plug and Play Bios can automatically configure all of the booth and Plug and Play-compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. By choosing “manual”, you are allowed to configure the *IRQ Resources*, *DMA Resources* and *Memory Resources*. The choices are Auto (ESCD) and Manual.

IRQ RESOURCES:

You may assign each system interrupt a type, depending on the type of device using the interrupt.

DMA RESOURCES:

When resources are controlled manually, assign each system DMA channel a type, depending on the type of device using the DM channel.

PCI/VGA PALETTE SNOOP:

Leave this field at disabled.

ASSIGN IRQ FOR VGA:

This item Enable/Disable to assign IRQ for VGA.

ASSIGN IRQ FOR USB:

This item Enable/Disable to assign IRQ for USB.

4-9. PC HEALTH STATUS

Choose "PC HEALTH STATUS" from the main menu, a display will be shown on screen as below:

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

Shutdown Temperature	[Disabled]	Item Help
Vcore	1.34V	Menu Level ►
VTT	1.50V	
3.3V	3.29V	
+5 V	4.91V	
+12V	11.96V	
-12V	(-)11.37V	
3VSB (V)	3.54V	
5VSB (V)	4.91V	
VBAT (V)	3.44V	
CPU Temperature	43°C	
CPU FAN Speed	4687 RPM	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

PC Health Status Setup Screen

The setup menu allows you to select whether to choose between monitoring or ignoring the hardware monitoring function of your system.

SHUTDOWN TEMPERATURE:

This item allows you to set the CPU shutdown Temperature. This function is only effective under Window 98 ACPI mode.

+3.3V/+5V/+12V/-12V/3VSB/5VSB:

This item shows you the voltage of +3.3V/+5V/+12V/-12V/3VSB/5VSB.

VCORE:

This item shows you the current system voltage.

CPU TEMPERATURE:

This item shows you the current CPU temperature.

CPUFAN SPEED:

This item shows you the current CPUFAN speed.

4-10. FREQUENCY/VOLTAGE CONTROL

Choose "FREQUENCY/VOLTAGE CONTROL" from the main menu, a display will be shown on screen as below:

Phoenix – AwardBIOS CMOS Setup Utility		
Frequency/Voltage Control		
VIA C3 Clock Ratio	[Default]	Item Help
Auto Detect DIMM/PCI Clk	[Enabled]	Menu Level ▶
Spread Spectrum	[Disabled]	
CPU Clock	[100]	
↑↓→←:Move Enter: Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5: Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Frequency / Voltage Control Setup Screen

This setup menu allows you to specify your settings for frequency/voltage control.

AUTO DETECT DIMM/PCI CLK:

This item allows you to enable or disable auto detect DIMM/PCI Clock.

SPREAD SPECTRUM MODULATED:

This item allows you to enable or disable the spread spectrum modulate.

CPU CLOCK:

Select Default or select a timing combination for the CPU and the PCI bus. When set to Default, the BIOS uses the actual CPU and PCI bus clock values.

4-11. LOAD FAIL-SAFE DEFAULTS

By pressing the <ENTER> key on this item, you get a confirmation dialog box with a message similar to the following:

Load Fail-Safe Defaults (Y/N) ? N

To use the BIOS default values, change the prompt to "Y" and press the <Enter> key. CMOS is loaded automatically when you power up the system.

4-12. LOAD OPTIMIZED DEFAULTS

When you press <Enter> on this category, you get a confirmation dialog box with a message similar to the following:

Load Optimized Defaults (Y/N) ? N

Pressing "Y" loads the default values that are factory setting for optimal performance system operations.

4-13. PASSWORD SETTING


User is allowed to set either supervisor or user password, or both of them. The difference is that the supervisor password can enter and change the options of the setup menus while the user password can enter only but do not have the authority to change the options of the setup menus.

TO SET A PASSWORD

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Enter Password:

Type the password up to eight characters in length, and press < Enter >. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press the < Enter > key. You may also press < Esc > to abort the selection and not enter a password.

 User should bear in mind that when a password is set, you will be asked to enter the password everything you enter CMOS setup Menu.

TO DISABLE THE PASSWORD

To disable the password, select this function (do not enter any key when you are prompt to enter a password), and press the <Enter> key and a message will appear at the center of the screen:

PASSWORD DISABLED!!!
Press any key to continue...

Press the < Enter > key again and the password will be disabled. Once the password is disabled, you can enter Setup freely.

4-14. SAVE & EXIT SETUP

After you have completed adjusting all the settings as required, you must remember to save these setting into the CMOS RAM. To save the settings, select “SAVE & EXIT SETUP” and press <Enter>, a display will be shown as follows:

Phoenix – AwardBIOS CMOS Setup Utility	
<ul style="list-style-type: none">▶ Standard CMOS Features▶ Advanced BIOS Features▶ Advanced Chipset Features▶ Integrated Peripherals▶ Power Management▶ PnP/PCI Configura▶ PC Health Status	<ul style="list-style-type: none">▶ Frequency/Voltage ControlLoad Fail-Safe DefaultsLoad Optimized DefaultsSet Supervisor Password
<div>Save to CMOS and EXIT Y/N)? Y</div>	
word etup Saving	
Esc : Quit F9 : Menu in BIOS ↑↓→← : Select Item F10 : Save & Exit Setup	
Save Data to CMOS	

When you confirm that you wish to save the settings, your system will be automatically restarted and the changes you have made will be implemented. You may always call up the setup program at any time to adjust any of the individual items by pressing the key during boot up.

4-15. EXIT WITHOUT SAVING

If you wish to cancel any changes you have made, you may select the “EXIT WITHOUT SAVING” and the original setting stored in the CMOS will be retained. The screen will be shown as below:

Phoenix – AwardBIOS CMOS Setup Utility	
<ul style="list-style-type: none">► Standard CMOS Features► Advanced BIOS Features► Advanced Chipset Features► Integrated Peripherals► Power Management► PnP/PCI Configura► PC Health Status	<ul style="list-style-type: none">► Frequency/Voltage ControlLoad Fail-Safe DefaultsLoad Optimized DefaultsSet Supervisor Password
<div>Quit Without Saving (Y/N)? N</div>	
<div>word</div> <div>etup</div> <div>Saving</div>	
Esc : Quit F9 : Menu in BIOS ↑↓→← : Select Item F10 : Save & Exit Setup	
Abandon all Datas	

EXPANSION BUS



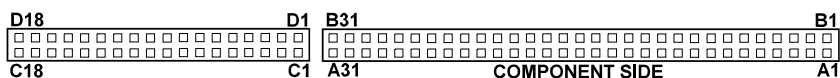
This appendix indicates the pin assignments.

Section includes:

- ISA BUS Pin Assignment

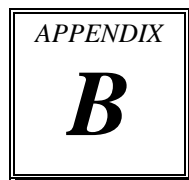
ISA BUS PIN ASSIGNMENT

There are two edge connector (called "gold fingers") on this CPU Card, on the right hand is the connector of ISA Bus, followed up by PCI BUS connector. The ISA-bus connector is divided into two sets : one consists of 62 pins; the other consists of 36 pins. The pin assignment is as follows:



B		A		D		C	
PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B1	GND	A1	-I/O CH CHK	D1	-MEMCS16	C1	SBHE
B2	RESET	A2	SD07	D2	-I/OCS16	C2	LA23
B3	+5V	A3	SD06	D3	IRQ10	C3	LA22
B4	IRQ9	A4	SD05	D4	IRQ11	C4	LA21
B5	-5V	A5	SD04	D5	IRQ12	C5	LA20
B6	DRQ2	A6	SD03	D6	IRQ15	C6	LA19
B7	-12V	A7	SD02	D7	IRQ14	C7	LA18
B8	OWS	A8	SD01	D8	-DACK0	C8	LA17
B9	+12V	A9	SD00	D9	DRQ0	C9	-MEMR
B10	GND	A10	-I/O CH RDY	D10	-DACK5	C10	-MEMW
B11	-SMEMW	A11	AEN	D11	DRQ5	C11	SD08
B12	-SMEMR	A12	SA19	D12	-DACK6	C12	SD09
B13	-IOW	A13	SA18	D13	DRQ6	C13	SD10
B14	-IOR	A14	SA17	D14	-DACK7	C14	SD11
B15	-DACK3	A15	SA16	D15	DRQ7	C15	SD12
B16	-DRQ3	A16	SA15	D16	+5V	C16	SD13
B17	-DACK1	A17	SA14	D17	-MASTER	C17	SD14
B18	-DRQ1	A18	SA13	D18	GND	C18	SD15
B19	-REFRESH	A19	SA12				
B20	BCLK	A20	SA11				
B21	IRQ7	A21	SA10				
B22	IRQ6	A22	SA09				
B23	IRQ5	A23	SA08				
B24	IRQ4	A24	SA07				
B25	IRQ3	A25	SA06				
B26	-DACK2	A26	SA05				
B27	T/C	A27	SA04				
B28	BALE	A28	SA03				
B29	+5V	A29	SA02				
B30	OSC	A30	SA01				
B31	GND	A31	SA00				

TECHNICAL SUMMARY

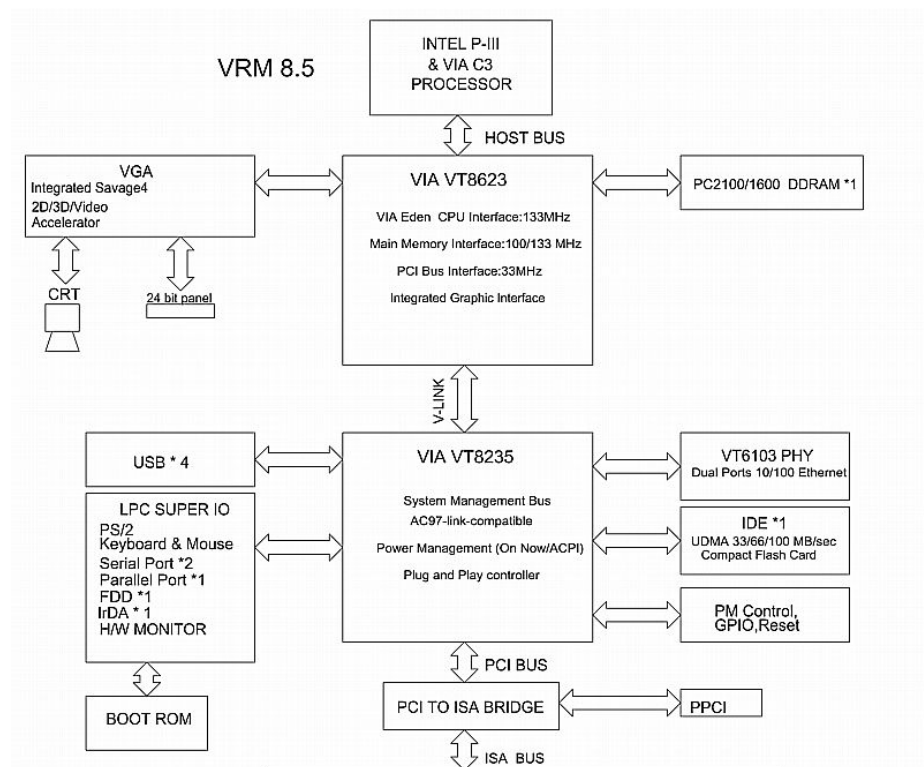


This section introduce you the maps concisely.

Sections include:

- Block Diagram
- Interrupt Map
- RTC (Standard) RAM Bank
- Timer & DMA Channels Map
- I / O & Memory Map

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System TIMER interrupt from TIMER-0
1	Keyboard output buffer full
2	Cascade for IRQ 8-15
3	Serial port 2
4	Serial port 1
5	Available
6	Floppy Disk adapter
7	Parallel port 1
8	RTC clock
9	Available
10	Available
11	Available
12	Available
13	Math coprocessor
14	Hard Disk adapter
15	Available

RTC (STANDARD) RAM BANK

CODE	ASSIGNMENT
00h	Seconds
01h	Second alarm
02h	Minutes
03h	Minutes alarm
04h	Hours
05h	Hours alarm
06h	Day of week
07h	Day of month
08h	Month
09h	Year
0Ah	Status register A
0Bh	Status register B
0Ch	Status register C
0Dh	Status register D
0Eh-7Fh	114 Bytes of User RAM

TIMER & DMA CHANNELS MAP

Timer Channel Map :

Timer Channel	Assignment
0	System timer interrupt
1	DRAM Refresh request
2	Speaker tone generator

DMA Channel Map :

DMA Channel	Assignment
0	Available
1	Available
2	Floppy Disk adapter
3	Available
4	Cascade
5	Available
6	Available
7	Available

I/O & MEMORY MAP

Fixed I/O Ranges Decoded by ICH2 :

I/O Address	Read Target	Write Target	Internal Unit
00h-08h	DMA Controller	DMA Controller	DMA
09h-0Eh	Reserved	DMA Controller	DMA
0Fh	DMA Controller	DMA Controller	DMA
10h-18h	DMA Controller	DMA Controller	DMA
19h-1Eh	Reserved	DMA Controller	DMA
1Fh	DMA Controller	DMA Controller	DMA
20h-21h	Interrupt Controller	Interrupt Controller	Interrupt
24h-25h	Interrupt Controller	Interrupt Controller	Interrupt
28h-29h	Interrupt Controller	Interrupt Controller	Interrupt
2Ch-2Dh	Interrupt Controller	Interrupt Controller	Interrupt
2Eh-2Fh	LPC SIO	LPC SIO	Forwarder to LPC
30h-31h	Interrupt Controller	Interrupt Controller	Interrupt
34h-35h	Interrupt Controller	Interrupt Controller	Interrupt
38h-39h	Interrupt Controller	Interrupt Controller	Interrupt
3Ch-3Dh	Interrupt Controller	Interrupt Controller	Interrupt
40h-42h	Timer/Counter	Timer/Counter	PIT (8254)
43h	Reserved	Timer/Counter	PIT
4E-4F	LPC SIO	LPC SIO	Forwarder to LPC
50h-52h	Timer/Counter	Timer/Counter	PIT
53h	Reserved	Timer/Counter	PIT
60h	Microcontroller	Microcontroller	Forwarder to LPC
61h	NMI Controller	NMI Controller	Processor I/F
62h	Microcontroller	Microcontroller	Forwarder to LPC
63h	NMI Controller	NMI Controller	Processor I/F
64h	Microcontroller	Microcontroller	Forwarder to LPC
65h	NMI Controller	NMI Controller	Processor I/F
66h	Microcontroller	Microcontroller	Forwarder to LPC
67h	NMI Controller	NMI Controller	Processor I/F
70h	Reserved ⁵	NMI & RTC controller	RTC
71h	RTC Controller	RTC Controller	RTC
72h	RTC Controller	NMI & RTC controller	RTC
73h	RTC Controller	RTC Controller	RTC
74h	RTC Controller	NMI & RTC controller	RTC
75h	RTC Controller	RTC Controller	RTC
76h	RTC Controller	NMI & RTC controller	RTC
77h	RTC Controller	RTC Controller	RTC

I/O Address	Read Target	Write Target	Internal Unit
80h	DMA Controller	DMA controller & LPC/PCI	DMA
81h-83h	DMA Controller	DMA Controller	DMA
84h-86h	DMA Controller	DMA Controller & LPC or PCI	DMA
87h	DMA Controller	DMA Controller	DMA
88h	DMA Controller	DMA Controller & LPC or PCI	DMA
89h-8Bh	DMA Controller	DMA Controller	DMA
8Ch-8Eh	DMA Controller	DMA Controller & LPC or PCI	DMA
08Fh	DMA Controller	DMA Controller	DMA
90h-91h	DMA Controller	DMA Controller	DMA
92h	Reset Generator	Reset Generator	Processor I/F
93h-9Fh	DMA Controller	DMA Controller	DMA
A0h-A1h	Interrupt Controller	Interrupt Controller	Interrupt
A4h-A5h	Interrupt Controller	Interrupt Controller	Interrupt
A8h-A9h	Interrupt Controller	Interrupt Controller	Interrupt
ACh-ADh	Interrupt Controller	Interrupt Controller	Interrupt
B0h-B1h	Interrupt Controller	Interrupt Controller	Interrupt
B2h-B3h	Power Management	Power Management	Power Management
B4h-B5h	Interrupt Controller	Interrupt Controller	Interrupt
B8h-B9h	Interrupt Controller	Interrupt Controller	Interrupt
BCh-BDh	Interrupt Controller	Interrupt Controller	Interrupt
C0h-D1h	DMA Controller	DMA Controller	DMA
D2h-DDh	Reserved	DMA Controller	DMA
DEh-DFh	DMA Controller	DMA Controller	DMA
F0h	See Note 3	FERR# /IGNNE#/ Interrupt Controller	Processor interface
170h-177h	IDE Controller ¹	IDE Controller ¹	Forwarded to IDE
1F0h-1F7h	IDE Controller ²	IDE Controller ²	Forwarded to IDE
376h	IDE Controller ¹	IDE Controller ¹	Forwarded to IDE
3F6h	IDE Controller ²	IDE Controller ²	Forwarded to IDE
4D0h-4D1h	Interrupt Controller	Interrupt Controller	Interrupt
CF9h	Reset Generator	Reset Generator	Processor interface

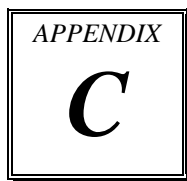
Notes:

1. Only if IDE Standard I/O space is enabled for Primary Drive. Otherwise, the target is PCI.
2. Only if IDE Standard I/O space is enabled for Secondary Drive. Otherwise, the target is PCI.
3. If POS_DEC_EN bit is enabled, reads from F0h will not be decoded by the ICH2. If POS_DEC_EN is not enabled, reads from F0h will forward to LPC.

Memory Decode Ranges From Processor Perspective :

Memory Range	Target	Dependency/Comments
0000 0000h-000D FFFFh 0010 0000-TOM (Top of Memory)	Main Memory	TOM registers in Host Controller
000E 0000h-000F FFFFh	FWH	Bit 7 in FWH Decode Enable Register is set
FEC0 0000h-FEC0 0100h	I/O APIC inside ICH2	
FFC0 0000h-FFC7 FFFFh FF80 0000h-FF87 FFFFh	FWH	Bit 0 in FWH Decode Enable Register
FFC8 0000h-FFCF FFFFh FF88 0000h-FF8F FFFFh	FWH	Bit 1 in FWH Decode Enable Register
FFD0 0000h-FFD7 FFFFh FF90 0000h-FF97 FFFFh	FWH	Bit 2 in FWH Decode Enable Register is set
FFD8 0000h-FFDF FFFFh FF98 0000h-FF9F FFFFh	FWH	Bit 3 in FWH Decode Enable Register is set
FFE0 0000h-FFE7 FFFFh FFA0 0000h-FFA7 FFFFh	FWH	Bit 4 in FWH Decode Enable Register is set
FFE8 0000h-FFE7 FFFFh FFA8 0000h-FFAF FFFFh	FWH	Bit 5 in FWH Decode Enable Register is set
FFF0 0000h-FFF7 FFFFh FFB0 0000h-FFB7 FFFFh	FWH	Bit 6 in FWH Decode Enable Register is set
FFF8 0000h-FFFF FFFFh FFB8 0000h-FFBF FFFFh	FWH	Always Enabled. The top two 64K blocks of this range can be swapped as described in Section 6.4.1.
FF70 0000h-FF7F FFFFh FF30 0000h-FF3F FFFFh	FWH	Bit 3 in FWH Decode Enable 2 Register is set
FF60 0000h-FF6F FFFFh FF20 0000h-FF2F FFFFh	FWH	Bit 2 in FWH Decode Enable 2 Register is set
FF50 0000h-FF5F FFFFh FF10 0000h-FF1F FFFFh	FWH	Bit 1 in FWH Decode Enable 2 Register is set
FF40 0000h-FF4F FFFFh FF00 0000h-FF0F FFFFh	FWH	Bit 0 in FWH Decode Enable 2 Register is set
Anywhere in 4GB range	D110 LAN Controller	Enable via BAR in Device 29:Function 0 (D110 LAN Controller)
All Other	PCI	None

TROUBLE SHOOTING



This section outlines the error messages that may occur when you operate the system. It also gives you the suggestions on solving the problems.

Section includes:

- Trouble Shooting for Error Messages
- Trouble Shooting for POST Code

TROUBLE SHOOTING FOR ERROR MESSAGES

The following information gives you the error messages and the troubleshooting. Please adjust your systems according to the messages below. And make sure all the components and connectors are in proper position and firmly attached. If the errors still encountered, please contact with your distributor for maintenance.

POST BEEP :

Currently there are two kinds of beep codes in BIOS. One code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

CMOS BATTERY HAS FAILED :

This message informs you that the CMOS battery is no longer functional. The user should replace it.

CMOS CHECKSUM ERROR :

This message informs you that the CMOS is incorrect. This error may have caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER :

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press < Enter >. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also make sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP :

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY :

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT :

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

**EISA CONFIGURATION CHECKSUM ERROR
PLEASE RUN EISA CONFIGURATION UTILITY :**

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

**EISA CONFIGURATION IS NOT COMPLETE
PLEASE RUN EISA CONFIGURATION UTILITY :**

The slot configure information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE :

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER :

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT :

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

INVALID EISA CONFIGURATION

PLEASE RUN EISA CONFIGURATION UTILITY :

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT :

Cannot initialize the keyboard. Make sure that the keyboard is properly attached and no keys being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

MEMORY ADDRESS ERROR AT ... :

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY PARITY ERROR AT ... :

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT :

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

MEMORY VERIFY ERROR AT ... :

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT :

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT :

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT :

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR – CHECKING FOR SEGMENT :

Indicates a parity error in Random Access Memory.

Should be Empty But EISA Board Found

PLEASE RUN EISA CONFIGURATION UTILITY :

A valid board ID was found in a slot that was configured as having no board ID.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found

PLEASE RUN EISA CONFIGURATION UTILITY :

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty :

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT :

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board in Slot

PLEASE RUN EISA CONFIGURATION UTILITY :

The board ID does not match the ID stored in the EISA non-volatile memory.

Note: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) FAIL (80) :

Unable to reset floppy subsystem.

FLOPPY DISK(S) FAIL (40) :

Floppy type mismatch.

Hard Disk(S) Fail (80) :

Hard Disk Drive reset failed.

Hard Disk(S) Fail (40) :

Hard Disk Drive controller diagnostics failed.

Hard Disk(S) Fail (20) :

Hard Disk Drive initialization error.

Hard Disk(S) Fail (10) :

Unable to recalibrate fixed disk.

Hard Disk(S) Fail (08) :

Sector Verify failed.

Keyboard is locked out – Unlock the key :

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present :

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop :

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error – System halted :

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail :

BIOS reports the memory test fail if the onboard memory is tested error.

TROUBLE SHOOTING FOR POST CODES

The lists below indicate you the post codes. Please follow the instruction to adjust your system. If the error still occurred, please contact with your distributor for maintenance.

- CFh** : Test CMOS R/W functionality.
- C0h** : Early chipset initialization
- Disable shadow RAM
 - Disable L2 cache (socket 7 or below)
 - Program basic chipset registers
- C1h** : Detect memory
- Auto-detection of DRAM size, type and ECC
 - Auto-detection of L2 cache (socket 7 or below)
- C3h** : Expand compressed BIOS code to DRAM.
- C5h** : Call chipset hook to copy BIOS black to E000 & F000 shadow RAM.
- 0h1** : Expand the Xgroup codes locating in physical address 1000:0
- 02h** : Reserved.
- 03h** : Initial Superio_Early_Init switch.
- 04h** : Reserved.
- 05h** : 1. Blank out screen
2. Clear CMOS error flag
- 06h** : Reserved
- 07h** : 1. Clear 8042 interface
2. Initialize 8042 self-test

- 08h** : 1. Test special keyboard controller for Winbond 977 series Super I/O Chips.
 2. Enable keyboard interface.
- 09h** : Reserved
- 0Ah** : 1. Disable PS/2 mouse interface (optional)
 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional).
 3. Reset keyboard for Winbond 977 series Super I/O chips.
- 0Bh** : Reserved
- 0Ch** : Reserved
- 0Dh** : Reserved
- 0Eh** : Test F000h segment shadow to see whether it is R/W-able or not.
 If test fails, keep beeping the speaker.
- 0Fh** : Reserved
- 10h** : Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD and DMI support.
- 11h** : Reserved
- 12h** : Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
- 13h** : Reserved
- 14h** : Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
- 15h** : Reserved
- 16h** : Initial Early_Init_Onboard_Generator switch.

- 17h** : Reserved
- 18h** : Detect CPU information including brand, SMI type (Cyril or Intel) and CPU level (586 or 686).
- 19h** : Reserved
- 1Ah** : Reserved
- 1Bh** : Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INIT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
- 1Ch** : Reserved
- 1Dh** : Initial EARLY_PM_INIT switch
- 1Eh** : Reserved
- 1Fh** : Load keyboard matrix (notebook platform)
- 20h** : Reserved
- 21h** : HPM initialization (notebook platform)
- 22h** : Reserved
- 23h** :
1. Check validity of RTC value:
e.g. a value of 5Ah is an invalid value for RTC minute.
 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
 5. Early PCI initialization:
 - Enumerate PCI bus number
 - Assign memory & I/O resource
 - Search for a valid VGA device & VGA BIOS, and put it into C000:0.

- 24h** : Reserved
- 25h** : Reserved
- 26h** : Reserved
- 27h** : Initialize INT 09 buffer
- 28h** : Reserved
- 29h** :
1. Program CPU internal mtrr (P6 & PII) for 0-640K memory address.
2. Initialize the APIC for Pentium class CPU.
3. Program early chipset according to CMOS setup.
 Example: onboard IDE controller.
4. Measure CPU speed.
5. Invoke video BIOS.
- 2Ah** : Reserved
- 2Bh** : Reserved
- 2Ch** : Reserved
- 2Dh** :
1. Initialize multi-language
2. Put information on screen display, including Award title, CPU type, CPU speed ...
- 2Eh** : Reserved
- 2Fh** : Reserved
- 30h** : Reserved
- 31h** : Reserved
- 32h** : Reserved
- 33h** : Reset keyboard except Winbond 977 series Super I/O chips.

34h	: Reserved
35h	: Reserved
36h	: Reserved
37h	: Reserved
38h	: Reserved
39h	: Reserved
3Ah	: Reserved
3Bh	: Reserved
3Ch	: Test 8254
3Dh	: Reserved
3Eh	: Test 8259 interrupt mask bits for channel 1.
3Fh	: Reserved
40h	: Test 8259 interrupt mask bits for channel 2.
41h	: Reserved
42h	: Reserved
43h	: Test 8259 functionality.
44h	: Reserved
45h	: Reserved
46h	: Reserved
47h	: Initialize EISA slot

- 48h** : Reserved
- 49h** : 1. Calculate total memory by testing the last double word of each 64K page.
 2. Program writes allocation for AMD K5 CPU.
- 4Ah** : Reserved
- 4Bh** : Reserved
- 4Ch** : Reserved
- 4Dh** : Reserved
- 4Eh** : 1. Program MTRR of M1 CPU
 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range.
 3. Initialize the APIC for P6 class CPU.
 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
- 4Fh** : Reserved
- 50h** : Initialize USB
- 51h** : Reserved
- 52h** : Test all memory (clear all extended memory to 0)
- 53h** : Reserved
- 54h** : Reserved
- 55h** : Display number of processors (multi-processor platform)
- 56h** : Reserved
- 57h** : 1. Display PnP logo
 2. Early ISA PnP initialization
 -Assign CSN to every PnP device.

- 58h** : Reserved
- 59h** : Initialize the combined Trend Anti-Virus code.
- 5Ah** : Reserved
- 5Bh** : (Optional Feature)
Show message for entering AWDFLASH.EXE from FDD
(optional)
- 5Ch** : Reserved
- 5Dh** : 1. Initialize Init_Onboard_Super_IO switch.
2. Initialize Init_Onboard_AUDIO switch.
- 5Eh** : Reserved
- 5Fh** : Reserved
- 60h** : Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility
- 61h** : Reserved
- 62h** : Reserved
- 63h** : Reserved
- 64h** : Reserved
- 65h** : Initialize PS/2 Mouse
- 66h** : Reserved
- 67h** : Prepare memory size information for function call:
INT 15h ax=E820h
- 68h** : Reserved
- 69h** : Turn on L2 cache.

- 6Ah** : Reserved
- 6Bh** : Program chipset registers according to items described in Setup and Auto-configuration table.
- 6Ch** : Reserved
- 6Dh** :
1. Assign resources to all ISA PnP devices.
2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
- 6Eh** : Reserved
- 6Fh** :
1. Initialize floppy controller.
2. Set up floppy related fields in 40:hardware.
- 70h** : Reserved
- 71h** : Reserved
- 72h** : Reserved
- 73h** : (Optional Feature)
Enter AWDFLASH.EXE if:
- AWDFLASH is found in floppy drive.
- ALT+F2 is pressed
- 74h** : Reserved
- 75h** : Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
- 76h** : Reserved
- 77h** : Detect serial ports and parallel ports
- 78h** : Reserved
- 79h** : Reserved
- 7Ah** : Detect and install co-processor

- 7Bh** : Reserved
- 7Ch** : Reserved
- 7Dh** : Reserved
- 7Eh** : Reserved
- 7Fh** : 1. Switch back to text mode if full screen logo is supported.
-If errors occur, report errors and wait for keys
-If no errors occur or F1 key is pressed to continue:
*Clear EPA or customization logo.
- 80h** : Reserved
- 81h** : Reserved
- 82h** : 1. Call chipset power management hook.
2. Recover the text font used by EPA logo (not for full screen logo).
3. If password is set, ask for password.
- 83h** : Save all data in stack back to CMOS.
- 84h** : Initialize ISA PnP boot devices.
- 85h** : 1. USB final initialization.
2. NET PC: Build SYSID structure.
3. Switch screen back to text mode.
4. Setup ACPI table at top of memory.
5. Invoke ISA adapter ROMs.
6. Assign IRQs to PCI devices.
7. Initialize APM.
8. Clear noise of IRQs.
- 86h** : Reserved
- 87h** : Reserved

- 88h** : Reserved
- 89h** : Reserved
- 90h** : Reserved
- 91h** : Reserved
- 92h** : Reserved
- 93h** : Read HDD boot sector information for Trend Anti-Virus code.
- 94h** :
1. Enable I2 cache.
2. Program boot up speed.
3. Chipset final initialization.
4. Power management final initialization.
5. Clear screen and display summary table
6. Program K6 write allocation.
7. Program P6 class write combining.
- 95h** :
1. Program daylight saving.
2. Update keyboard LED and typematic rate.
- 96h** :
1. Build MP table.
2. Build and update ESCD.
3. Set CMOS century to 20h or 19h.
4. Load CMOS time into DOS timer tick.
5. Build MSIRQ routing table.
- FFh** : Boot attempt (INT 19h)

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